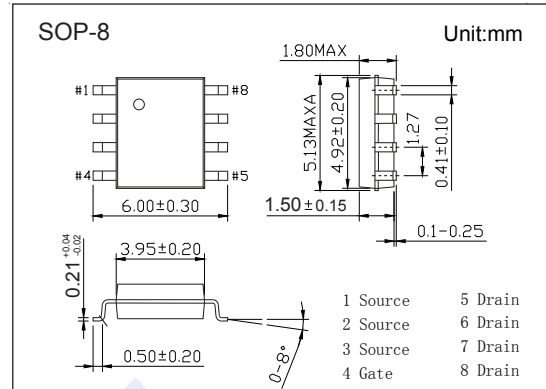
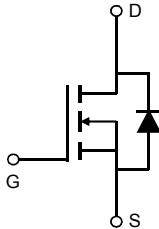


N-Channel MOSFET

AO4576 (KO4576)

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 20 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 5.8m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 9.8m\Omega (V_{GS} = 4.5V)$



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	30	V	
Gate-Source Voltage	V_{GS}	± 20		
V_{DS} Spike	V_{SPIKE}	36		
Continuous Drain Current	I_D	$T_A = 25^\circ\text{C}$	20	A
		$T_A = 70^\circ\text{C}$	12	
Pulsed Drain Current	I_{DM}	144		
Avalanche Current	I_{AS}	25		
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	31	mJ
Power Dissipation	P_D	$T_A = 25^\circ\text{C}$	3.1	W
		$T_A = 70^\circ\text{C}$	2	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	$t \leq 10\text{s}$	40	$^\circ\text{C/W}$
		Steady-State	75	
Thermal Resistance.Junction- to-Lead	R_{thJL}	24		
Junction Temperature	T_J	150	$^\circ\text{C}$	
Storage Temperature Range	T_{stg}	-55 to 150		

N-Channel MOSFET

AO4576 (KO4576)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
		V _{DS} =30V, V _{GS} =0V, T _J =55°C			5	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.4		2.2	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A			5.8	mΩ
		V _{GS} =10V, I _D =20A T _J =125°C			7.6	
		V _{GS} =4.5V, I _D =20A			9.8	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =20A		91		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		1037		pF
Output Capacitance	C _{oss}			441		
Reverse Transfer Capacitance	C _{rss}			61		
Gate Resistance	R _g		V _{GS} =0V, V _{DS} =0V, f=1MHz	0.7		
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =12A		15.5	22.5	nC
Total Gate Charge (4.5V)				6.8	10.5	
Gate Source Charge	Q _{gs}			3		
Gate Drain Charge	Q _{gd}			3.6		
Turn-On DelayTime	t _{d(on)}		V _{GS} =10V, V _{DS} =15V, R _L =1.25Ω, R _{GEN} =3Ω		5.5	
Turn-On Rise Time	t _r			3.3		
Turn-Off DelayTime	t _{d(off)}			18		
Turn-Off Fall Time	t _f			4.3		
Body Diode Reverse Recovery Time	t _{rr}	I _F = 20A, di/dt= 500A/us		12.7		nC
Body Diode Reverse Recovery Charge	Q _{rr}			17.2		
Maximum Body-Diode Continuous Current	I _S				4	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V			1	V

Note : The static characteristics in Figures 1 to 6 are obtained using <300 us pulses, duty cycle 0.5% max.

■ Marking

Marking	4576 KC****
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N-Channel MOSFET AO4576 (KO4576)

■ Typical Characteristics

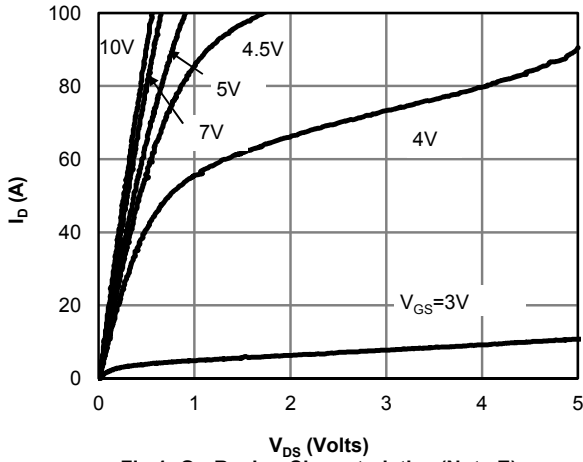


Fig 1: On-Region Characteristics (Note E)

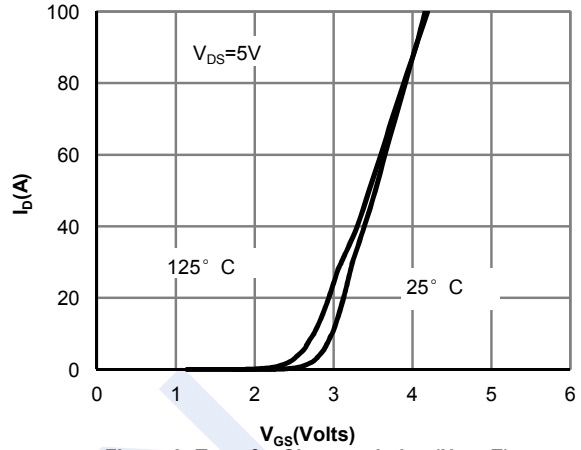


Figure 2: Transfer Characteristics (Note E)

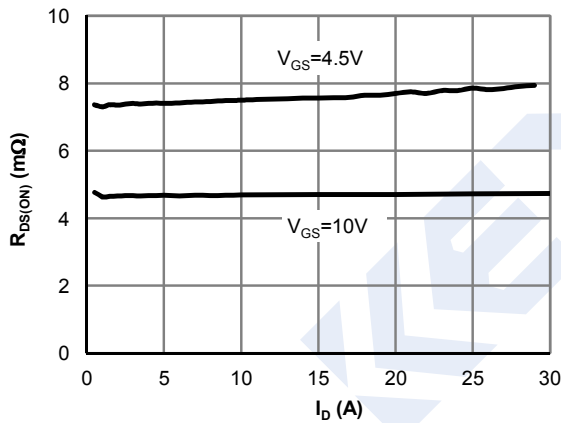


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

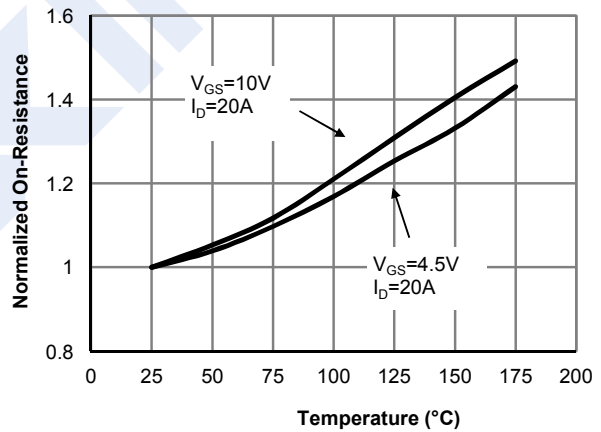


Figure 4: On-Resistance vs. Junction Temperature (Note E)

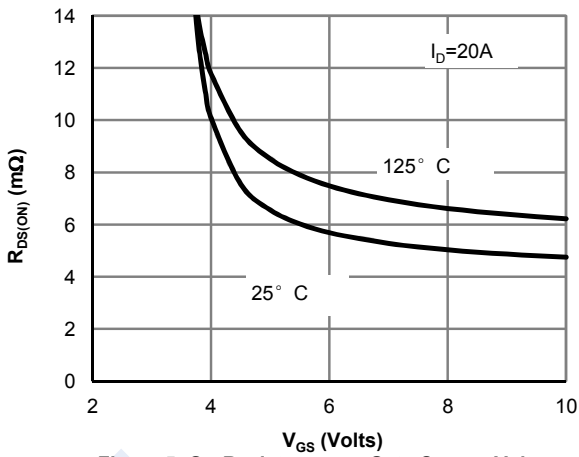


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

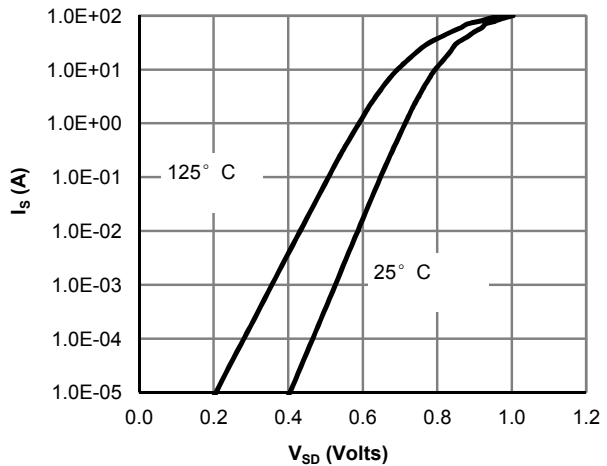


Figure 6: Body-Diode Characteristics (Note E)

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■ Typical Characteristics

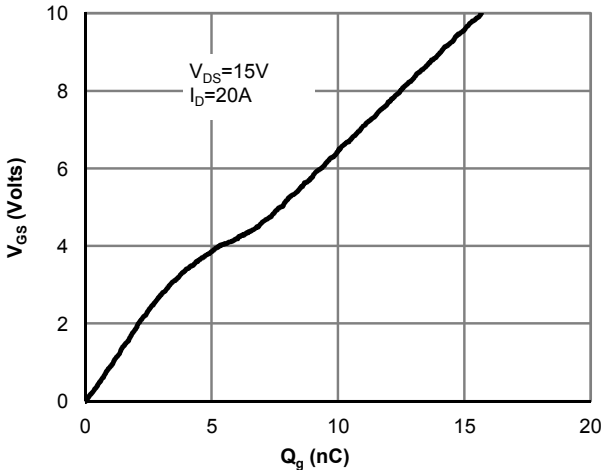


Figure 7: Gate-Charge Characteristics

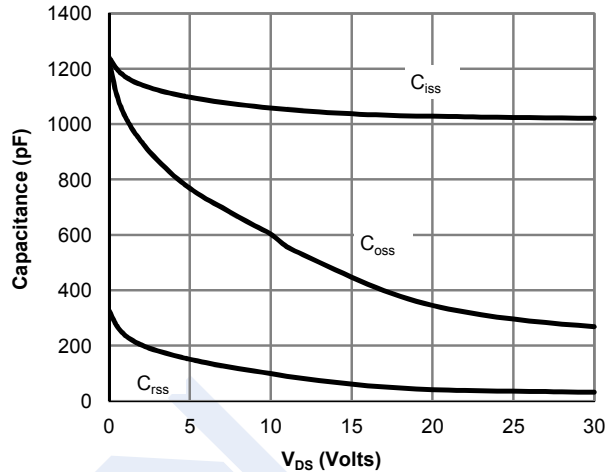


Figure 8: Capacitance Characteristics

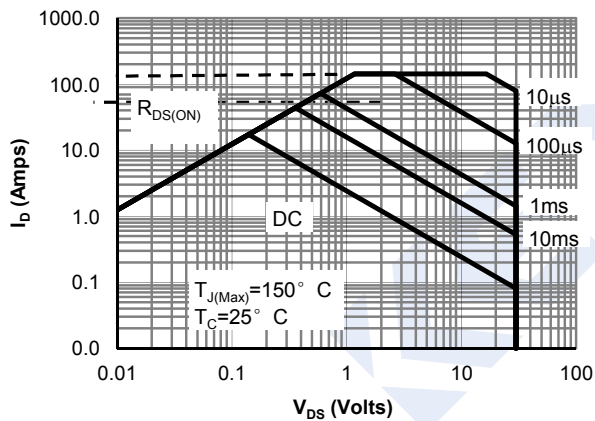


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

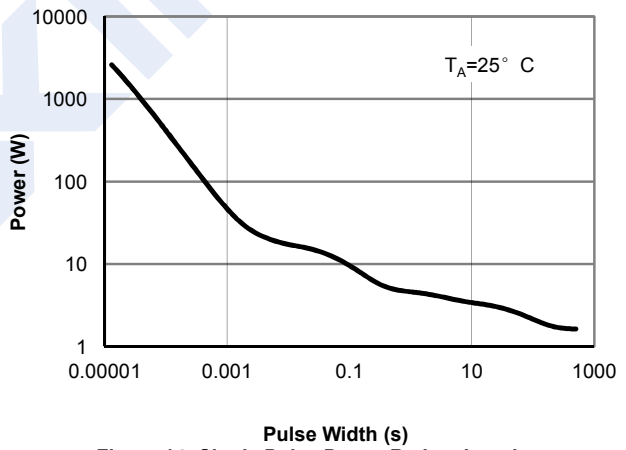


Figure 14: Single Pulse Power Rating Junction-to-Ambient (Note F)

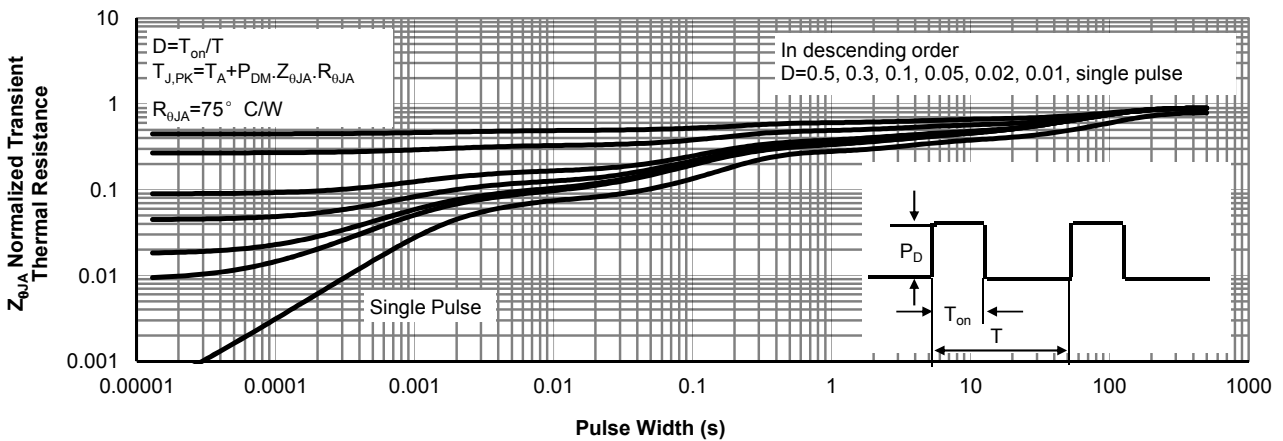


Figure 15: Normalized Maximum Transient Thermal Impedance (Note F)